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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,969	09/30/2005	Tatsuo Hoshino	K21307 USWO	7624

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Stephen M Haracz
Bryan Cave
1290 Avenue of the Americas
New York, NY 10104

EXAMINER	
CHOWDHURY, IQBAL HOSSAIN	

ART UNIT	PAPER NUMBER
1652	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,969	HOSHINO ET AL.	
	Examiner	Art Unit	
	Iqbal H. Chowdhury, Ph.D.	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This application is a 371 of PCT/EP03/04893.

The preliminary amendment filed on 12/31/2004 is acknowledged. Claims 14-21 have been added as new claims. Claims 1-21 are at issue and are present for examination.

Priority

Acknowledgement is made of applicants claim for foreign priority of EPO 02014784.9 of 7/4/2002.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 3/28/2005 is acknowledged. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

There is no drawing with this application.

Claim Objections

Claim 1 is objected to with the recitation "(phoren-ol)" should be "(phorenol)". Appropriate correction is required.

Claim 1 is objected to with the recitation "cell free extract thereof; with a recombinant microorganism" should be "cell free extract thereof, or with a recombinant microorganism". Appropriate correction is required.

Claim 3 is objected to with the recitation "keto-isophorone" should be "ketoisophorone". Appropriate correction is required.

Claim 9 is objected to because of the following informalities: "regio-and stereoselectively" should be "regio- and stereo-selectively". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 7-8, and 10-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 7-8 and 10-11 recite the phrase "derived from --- Corynebacterium ---". The metes and bounds of this phrase is not clear to the examiner. Literally, while the term "derive" means "to isolate from or obtain from a source, the above term could also mean "to arrive at by reasoning i.e. to deduce or infer" or also as "to produce or obtain from another substance". Therefore, it is not clear to the examiner either from the specification or from the claims as to what applicants mean by the above phrase. It is not clear to the Examiner whether the cDNA "derived from --- Corynebacterium ---" encompasses a single specific cDNA as in "isolated from a Corynebacterium" or whether it encompasses recombinants, variants and mutants of any levodione reductase cDNA from any species or modified levodione reductase from any other source and labeled as "derived from --- Corynebacterium". As applicants have not provided a definition for the above phrase, Examiner has interpreted the claims broadly to mean that a cDNA "derived from --- Corynebacterium ---" encompasses nucleic acid sequences,

which are recombinants, variants, and mutants of any levodione reductase cDNA. Examiner has given the same interpretation while considering the claims for all other rejections.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite and vague for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 8 is indefinite in the recitation of the "functional equivalent" which is ambiguous and confusing. It is not clear to the Examiner whether "functional equivalent" refers to "levodione reductase gene" or "Corynebacterium"? Clarification is required.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1-21 are directed to a process for producing (4S)-4-hydroxy-2,6,6-trimethyl-2-cyclohexene-l-one (phorenol or phorone or isophorone) from 2,6,6-trimethyl-2-cyclohexene-1,4-dione (ketoisophorone) comprising contacting ketoisophorone with any microorganism or mutant strains thereof, or contacting with a cell-free extract from recombinant microorganism or

mutant strains thereof comprising any recombinant protein or mutants or variants thereof, or contacting with any levodione reductase enzyme or mutants or variants thereof, and isolating the resulting phorenol from the reaction mixture. Claim 2 recites a process for producing phorenol from ketoisophorone comprising contacting ketoisophorone with a microorganism, which is capable of producing actinol from levodione, or with a cell-free extract thereof, and isolating the resulting phorenol from the reaction mixture and claim 3 recites a process for producing phorenol from ketoisophorone comprising contacting ketoisophorone with a microorganism or cell-free extract thereof selected from members of the genera Cellulomonas, Corynebacterium, Planococcus and Arthrobacter, which are capable of selective asymmetric reduction of levodione to actinol, and isolating the resulting phorenol from the reaction mixture. Claim 4 recites the process, wherein the microorganism is selected from the group consisting of Cellulomonas sp. AKU672 (FERM BP-6449), Corynebacterium aquaticum AKU610 (FERM BP-6447), Corynebacterium aquaticum AKU611 (FERM BP-6448), Planococcus okeanokoites AKU152 (IFO 15880) and Arthrobacter sulfureus AKU635 (IFO 12678), and mutants thereof and claim 5 recites the process, wherein the microorganism is Corynebacterium aquaficum AKU611 (FERM BP-6448). Claim 6 recites a process for producing phorenol from ketoisophorone by contacting ketoisophorone with a recombinant microorganism or cell-free extract thereof, which is expressing the levodione reductase gene, and isolating the resulting phorenol from the reaction mixture and claim 7 recites the process, wherein the levodione reductase gene is derived from a microorganism belonging to the genus Corynebacterium. Claim 9 recites a process for producing phorenol from ketoisophorone by contacting ketoisophorone with any levodione reductase, which is capable of catalyzing the conversion of ketoisophorone

regio- and stereo-selectively to phorenol and claim 10 recites the process wherein the levodione reductase is derived from the microorganism belonging to the genus Corynebacterium. Claim 12 recites the process, wherein the reaction is carried out at pH values of from 4.0 to 9.0, at a temperature range from 10 to 50°C and for 15 minutes to 72 hours and claim 13 recites the process, wherein the reaction is carried out at pH values of from 5.0 to 8.0, at a temperature range at from 20 to 40°C and for 30 minutes to 48 hours. Claim 14 recites the process according to claim 2, wherein the reaction is carried out at pH values of from 4.0 to 9.0, at a temperature range from 10 to 50°C and for 15 minutes to 72 hours and claim 15 recites the process, wherein the reaction is carried out at pH values of from 5.0 to 8.0, at a temperature range at from 20 to 40°C and for 30 minutes to 48 hours. Claim 16 recites the process, wherein the reaction is carried out at pH values of from 4.0 to 9.0, at a temperature range from 10 to 50°C and for 15 minutes to 72 hours and claim 17 recites the process, wherein the reaction is carried out at pH values of from 5.0 to 8.0, at a temperature range at from 20 to 40°C and for 30 minutes to 48 hours. Claim 18 recites the process, wherein the reaction is carried out at pH values of from 4.0 to 9.0, at a temperature range from 10 to 50°C and for 15 minutes to 72 hours and claim 19 recites the process, wherein the reaction is carried out at pH values of from 5.0 to 8.0, at a temperature range at from 20 to 40°C and for 30 minutes to 48 hours. Claim 20 recites the process, wherein the reaction is carried out at pH values of from 4.0 to 9.0, at a temperature range from 10 to 50°C and for 15 minutes to 72 hours and claim 21 recites the process, wherein the reaction is carried out at pH values of from 5.0 to 8.0, at a temperature range at from 20 to 40°C and for 30 minutes to 48 hours.

Thus, claims 1-21 are drawn to a process for producing (4S)-4-hydroxy-2,6,6-trimethyl-2-cyclohexene-l-one (phorenol or phorone or isophorone) from 2,6,6-trimethyl-2-cyclohexene-1,4-dione (ketoisophorone) comprising contacting ketoisophorone with any microorganism or mutant strains thereof, or contacting with a cell-free extract from recombinant microorganism or mutant strains thereof comprising any recombinant proteins, or mutants or variants thereof, or contacting with any levodione reductase proteins or mutants or variants thereof, and isolating the resulting phorenol from the reaction mixture. Claims are drawn to a process of using a microorganism expressing levodione reductase enzyme whose structure is not fully described in the specification. No information, beyond the characterization of the microorganisms producing any levodione reductase (including mutants, variants and recombinants of said enzyme) having the activity of converting levodione to actinol has been provided, which would indicate that they had possession of the method of using the genus of levodione reductase enzymes produced by the microorganism. The specification does not contain any disclosure of the structure of all the mutants or variants of any levodione reductase enzyme or that of microorganism producing the same within the scope of the claimed genus. The genus of microorganism or the polypeptides used is a large variable genus including peptides, which can have wide variety structures. Therefore, many structurally unrelated polypeptides and microorganism producing the same are encompassed within the scope of these claims. The specification discloses the structure of only a single representative species i.e., the enzyme produced by C. aquaticum AKU611 for use in the of the claimed method, which is insufficient to put one of skill in the art in possession of the attributes and features of all species within the

claimed genus. Therefore, one skilled in the art cannot reasonably conclude that applicant had possession of the claimed invention at the time the instant application was filed.

Applicant is referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

Claims 1-4 and 6-21 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a process for producing (4S)-4-hydroxy-2,6,6-trimethyl-2-cyclohexene-l-one (phorenol or phorone or isophorone) from 2,6,6-trimethyl-2-cyclohexene-1,4-dione (ketoisophorone) by using an E. coli strain comprising a levodione reductase gene isolated from Corynebacterium aquaticum AKU611 or by directly using C. aquaticum AKU611 (claim 5), does not reasonably provide enablement for a process for producing phorenol or phorone or isophorone from ketoisophorone by using any microorganism comprising any levodione reductase gene from any source or any mutant strain comprising any mutant or any variant of any levodione reductase gene or any cell extract from any microorganism comprising any levodione reductase gene or any mutant strain comprising any mutant or any variant of any levodione reductase gene. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Claim 1 is so broad as to encompass a process for producing phorenol or phorone or isophorone from ketoisophorone by using any microorganism comprising any levodione reductase gene from any source or any mutant strain comprising any mutant or any variant of any

levodione reductase gene or any cell extract from any microorganism comprising any levodione reductase gene or any mutant strain comprising any mutant or any variant of any levodione reductase gene. Claim 2 recites a process for producing phorenol from ketoisophorone comprising contacting ketoisophorone with a microorganism, which is capable of producing actinol from levodione, or with a cell-free extract thereof, and isolating the resulting phorenol from the reaction mixture and claim 3 recites a process for producing phorenol from ketoisophorone comprising contacting ketoisophorone with a microorganism or cell-free extract thereof selected from members of the genera Cellulomonas, Corynebacterium, Planococcus and Arthrobacter, which are capable of selective asymmetric reduction of levodione to actinol, and isolating the resulting phorenol from the reaction mixture. Claim 4 recites the process, wherein the microorganism is selected from the group consisting of Cellulomonas sp. AKU672 (FERM BP-6449), Corynebacterium aquaticum AKU610 (FERM BP-6447), Corynebacterium aquaticum AKU611 (FERM BP-6448), Planococcus okeanokoites AKU152 (IFO 15880) and Arthrobacter sulfureus AKU635 (IFO 12678), and mutants thereof. Claim 6 recites a process for producing phorenol from ketoisophorone by contacting ketoisophorone with a recombinant microorganism or cell-free extract thereof, which is expressing the levodione reductase gene, and isolating the resulting phorenol from the reaction mixture and claim 7 recites the process, wherein the levodione reductase gene is derived from a microorganism belonging to the genus Corynebacterium. Claim 9 recites a process for producing phorenol from ketoisophorone by contacting ketoisophorone with any levodione reductase, which is capable of catalyzing the conversion of ketoisophorone regio- and stereo-selectively to phorenol and claim 10 recites the process wherein the levodione reductase is derived from the microorganism belonging to the

genus Corynebacterium. Claim 12 recites the process, wherein the reaction is carried out at pH values of from 4.0 to 9.0, at a temperature range from 10 to 50°C and for 15 minutes to 72 hours and claim 13 recites the process, wherein the reaction is carried out at pH values of from 5.0 to 8.0, at a temperature range at from 20 to 40°C and for 30 minutes to 48 hours. Claim 14 recites the process according to claim 2, wherein the reaction is carried out at pH values of from 4.0 to 9.0, at a temperature range from 10 to 50°C and for 15 minutes to 72 hours and claim 15 recites the process, wherein the reaction is carried out at pH values of from 5.0 to 8.0, at a temperature range at from 20 to 40°C and for 30 minutes to 48 hours. Claim 16 recites the process, wherein the reaction is carried out at pH values of from 4.0 to 9.0, at a temperature range from 10 to 50°C and for 15 minutes to 72 hours and claim 17 recites the process, wherein the reaction is carried out at pH values of from 5.0 to 8.0, at a temperature range at from 20 to 40°C and for 30 minutes to 48 hours. Claim 18 recites the process, wherein the reaction is carried out at pH values of from 4.0 to 9.0, at a temperature range from 10 to 50°C and for 15 minutes to 72 hours and claim 19 recites the process, wherein the reaction is carried out at pH values of from 5.0 to 8.0, at a temperature range at from 20 to 40°C and for 30 minutes to 48 hours. Claim 20 recites the process, wherein the reaction is carried out at pH values of from 4.0 to 9.0, at a temperature range from 10 to 50°C and for 15 minutes to 72 hours and claim 21 recites the process, wherein the reaction is carried out at pH values of from 5.0 to 8.0, at a temperature range at from 20 to 40°C and for 30 minutes to 48 hours.

The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the method of using extremely large number of levodione reductase enzymes broadly encompassed by the claims. Since the amino acid sequence of a protein

determines its structural and functional properties, predictability of which changes can be tolerated in a protein's amino acid sequence and obtain the desired activity requires a knowledge of and guidance with regard to which amino acids in the protein's sequence, if any, are tolerant of modification and which are conserved (i.e. expectedly intolerant to modification), and detailed knowledge of the ways in which the proteins' structure relates to its function. However, in this case the disclosure is limited to the methods comprising nucleotide and encoded amino acid sequence of only one levodione reductase gene.

While recombinant and mutagenesis techniques are known, it is not routine in the art to screen for multiple substitutions or multiple modifications, as encompassed by the instant claims, and the positions within a protein's sequence where amino acid modifications can be made with a reasonable expectation of success in obtaining the desired activity/utility are limited in any protein and the result of such modifications is unpredictable. In addition, one skilled in the art would expect any tolerance to modification for a given protein to diminish with each further and additional modification, e.g. multiple point mutations or substitutions.

The specification does not support the broad scope of the claims which encompass a process for producing phorenol or phorone or isophorone from ketoisophorone by using any microorganism comprising any levodione reductase gene or any mutant strain comprising any mutant or any variant of any levodione reductase gene or any cell extract from any microorganism or any mutant strain comprising any levodione reductase gene because the specification does **not** establish: (A) regions of the protein structure which may be modified without effecting levodione reductase activity; (B) the general tolerance of levodione reductase to modification and extent of such tolerance; (C) a rational and predictable scheme for modifying

any levodione reductase residues with an expectation of obtaining the desired biological function; and (D) the specification provides insufficient guidance as to which of the essentially infinite possible choices is likely to be successful.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including a process for producing phorenol or phorone or isophorone from ketoisophorone by using any microorganism comprising any levodione reductase gene or any mutant strain comprising any mutant or any variant of any levodione reductase gene or any cell extract from any microorganism or mutant strain comprising any levodione reductase gene. The scope of the claims must bear a reasonable correlation with the scope of enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of a process for producing phorenol or phorone or isophorone from ketoisophorone by using any microorganism comprising any levodione reductase gene or any mutant strain comprising any mutant or any variant of any levodione reductase gene or any cell extract from any microorganism or mutant strain comprising any levodione reductase gene having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

Claims 4-5, 8, 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described

in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 4-5, 8 and 11 are drawn method of using novel microorganisms. Since the microorganisms are essential to the claimed invention, they must be obtainable by a repeatable method set forth in the specification or otherwise be readily available to the public. The recited microorganisms have not been shown to be publicly known and freely available. The enablement requirements of 35 U.S.C. 112 may be satisfied by a deposit of the microorganisms. The specification does not disclose a repeatable process to obtain the microorganisms and it is not apparent if the DNA sequences required for construction of the vectors in such microorganisms are readily available to the public. Accordingly, it is deemed that a deposit of these plasmids should have been made in accordance with 37 CFR 1.801-1.809.

It is noted that applicants have deposited some of the organisms but there is no indication in the specification as to public availability. If the deposit was made under the terms of the Budapest Treaty, then an affidavit or declaration by applicants, or a statement by an attorney of record over his or her signature and registration number, stating that the specific strain has been deposited under the Budapest Treaty and that the strain will be available to the public under the conditions specified in 37 CFR 1.808, would satisfy the deposit requirement made herein.

If the deposit has not been made under the Budapest treaty, then in order to certify that the deposit meets the criteria set forth in 37 CFR 1.801-1.809, applicants may provide assurance or compliance by an affidavit or declaration, or by a statement by an attorney of record over his or her signature and registration number, showing that:

1. during the pendency of this application, access to the invention will be afforded to the Commissioner upon request;

2. upon granting of the patent the strain will be available to the public under the conditions specified in 37 CFR 1.808;

3. the deposit will be maintained in a public repository for a period of 30 years or 5 years after the last request or for the effective life of the patent, whichever is longer; and

4. the deposit will be replaced if it should ever become unavailable.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 6-21 are rejected under 35 U.S.C. 102(a) as being anticipated by Wada et al. (Production of a doubly chiral compound, (4R,6R)-4-hydroxy-2,2,6-trimethylcyclohexanone, by two-step enzymatic asymmetric reduction, Appl Environ Microbiol. 2003 Feb;69(2):933-7, see IDS). Wada et al. teach a method for producing phorenol from ketoisophorone (KIP) by using cell extract of E. coli comprising levodione reductase gene from Corynebacterium aquaticum, followed by expression of said gene encoding protein, which converts ketoisophorone to phorenol. Wada et al. also teach that said microbial cell extract capable of producing actinol from levodione. Wada et al. further teach isolating phorenol from the mixture

by gas chromatography and quantitatively determined the concentration. Wada et al. furthermore teach that the reaction assay is performed at pH 7-8, temperature 25-37oC for 30 min for the production of phorenol from ketoisophorone. Therefore, Wada et al. anticipate claims 1-4 and 6-21 of instant application.

Claims 1-21 are rejected under 35 U.S.C. 102(b) as being anticipated by EP0982406 A2 (microbial production of actinol, publication 1/3/2000, see IDS). EP0982406 teaches a process for microbial production of actinol from ketoisophorone (KIP) through levodione. The conversion of KIP to actinol through levodione is performed by the enzyme levodione reductase inherently present in the microorganism either constitutive expression or transformed by the said levodione reductase gene and said levodione reductase gene also produces phorenol from KIP. Therefore, EP0982406 discloses a process for producing phorenol from KIP. EP0982406 also discloses the microorganisms which can convert KIP/levodione to actinol or phorenol, such as Cellulomonas, Corynebacterium, Planococcus and arthrobacter including Cellulomonas sp. AKU672, Corynebacterium aquaticum AKU610 and Corynebacterium aquaticum AKU611, Planococcus okeanokoites AKU152 and Arthrobacter sulfurous AKU635 and isolating the products and recovering and quantitative concentration determination. EP0982406 further discloses the process performed at pH range 4-9, temperature 20-50oC for 10 min to 80hrs. Therefore, EP0982406 anticipates claims 1-21 of instant application.

Conclusion

Status of the claims:

Claims 1-21 are pending.

Claims 1-21 are rejected.

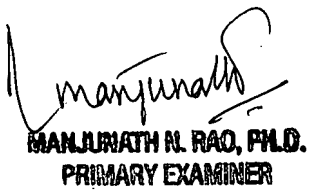
No claim is in condition for allowance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Iqbal Chowdhury whose telephone number is 571-272-8137. The examiner can normally be reached on 9:00-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 703-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Iqbal Chowdhury, PhD, Patent Examiner
Art Unit 1652 (Recombinant Enzymes)
US Patent and Trademark Office
Rm. REM 2B69, Mail Box. 2C70
Ph. (571)-272-8137, Fax. (571)-273-8137



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